

Application Serial No: 10/672,964
In reply to Office Action of 16 July 2004

Attorney Docket No. 83806

AMENDMENTS TO THE CLAIMS

1. (Original): A modular sensor assembly of a towed array comprising:

a support structure having opposed upper and lower plates spaced apart by vertical sectioning walls and defining discrete chambers of said support structure;

an acoustically absorptive hub positioned centrally in said support structure and in communication with said discrete chambers; and

a sensor element secured in a selected chamber of said support structure.

2. (Original): The assembly according to claim 1 wherein said support structure is an integrally formed viscoelastic housing.

3. (Original): The assembly according to claim 1 wherein said support structure is a cylindrical housing having a central axis with said vertical sectioning walls arranged radially thereabout, said acoustically absorptive hub being positioned at the central axis of said support structure.

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4. (Original): The assembly according to claim 3 wherein said support structure is integrally formed of a viscoelastic material.

5. (Original): The assembly according to claim 1 wherein said sensor element is secured within said selected chamber of the support structure by structural adhesive.

6. (Original): The assembly according to claim 5 wherein said sensor element is secured to an outer surface of said acoustically absorptive hub with structural adhesive.

7. (Original): The assembly according to claim 1 wherein said sensor element is secured to an outer surface of said acoustically absorptive hub with a structural adhesive.

8. (Original): The assembly according to claim 1 wherein said sensor element is a piezo-electric composite element.

9. (Original): The assembly according to claim 8 wherein said sensor element comprises:

at least two layers of piezo-electric composite, each layer
having upper surface and a lower surface; and

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an electrical insulator positioned between adjacent ones of
said at least two layers.

10. (Original): The assembly according to claim 9 wherein said at least two layers are disposed at first and second different distances from said acoustically absorbing hub.

11. (Original): The assembly according to claim 9 wherein said at least two layers are disposed in planes parallel to a radius from said acoustically absorbing hub.

12. (Original): The assembly according to claim 9 wherein said electrical insulator is secured between a first layer of said at least two layers and a second layer of said at least two layers with a structural adhesive.

13. (Original): The assembly according to claim 9 further comprising an electrode on at least one of the upper and lower surfaces of each said sensor element.

14. (Original): The assembly according to claim 1 wherein a separate said sensor element is secured in each of said discrete chambers of said support structure.

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15. (Currently amended): The assembly according to claim 1 wherein:

said support structure is a cylindrical housing having a central axis with said vertical sectioning walls arranged radially thereabout, said acoustically absorptive hub being positioned at the central axis of said support structure; and

said sensor element having an inner surface oriented toward said acoustically absorptive hub and an outer surface positioned away from said ~~central~~ cylindrical housing, wherein said inner surface conforms to an outer surface of said acoustically absorptive hub and said outer surface conforms to the shape of said cylindrical housing.

16. (Original): The assembly according to claim 15 wherein:

said vertical sectioning walls of said cylindrical housing have a peripheral shape; and

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said outer surface of said sensor element has a shape
conforming with the peripheral shape of said vertical
sectioning walls.

17. (Currently amended): The assembly according to claim 1
wherein:

said support structure is a frusto-conical housing having a
central axis with said vertical sectioning walls
arranged radially thereabout, said acoustically
absorptive hub being positioned at the central axis of
said support structure; and

said sensor element having an inner surface oriented toward
said acoustically absorptive hub and an outer surface
positioned away from said ~~central~~ cylindrical housing,
wherein said inner surface conforms to an outer
surface of said acoustically absorptive hub and said
outer surface conforms to the shape of said frusto-
conical housing.

18. (Original): The assembly according to claim 17 wherein:

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said vertical sectioning walls of said frusto-conical
housing have a peripheral shape; and

said outer surface of said sensor element has a shape
conforming with the peripheral shape of said vertical
sectioning walls.